

stakeholders were denied the ability to participate in the development of an EIR, as required under the provisions of CEQA.

The document as written is nothing more than a thinly veiled attempt to justify a pump station in the American River canyon to supply water to PCWA. I found many of the analyses totally lacking in scientific merit, fundamentally flawed, and unable to biologically and scientifically support the conclusions reached. While NEPA requires documentation of the potential environmental impacts, CEQA requires a full consideration of alternatives that will meet the project's objectives. The Bureau/PCWA have attempted to limit consideration of the project by narrowly defining one of the project's primary objective to providing water to PCWA from the Middle Fork Project. In fact, the objective should be to provide PCWA with the desired quantity of water in the least environmentally damaging way. Failure to actively consider the alternative of land conservation easements (which would meet CALFED objectives) which would allow water to be transferred among several entities and thus eliminate the need for additional diversions from the American River, eliminate construction related impacts, and forego the massive pumping costs in the future is a clear violation of the intent of CEQA. The document should be rewritten to incorporate a thorough analysis of this additional alternative. In addition, the fisheries and aquatic resources section in general should be completely redone to eliminate the indefensible and fatally flawed analyses. New analyses, using biologically relevant data and time steps should be incorporated into the second DEIS/DEIR.

Specific Comments

The Concept of "Replacement Water": Subsequent to the release of the document, Ron Otto, Ophir Area Property Owners Association, in an 11/13/01 conversation with the Bureau's Rod Hall, learned that the water to be pumped was, apparently in part, "replacement water" and this fact was not mentioned in the DEIS/DEIR. With no further details, it is impossible to ascertain the potential impacts this replacement water might have on Auburn Ravine and the City of Lincoln's Wastewater Treatment and Reclamation Facility (WWTRF). However, if the major source of the City of Lincoln's water supply is changed from Yuba/Bear river water to American River water, then the following factors need to be addressed:

- Does the change in the water supply source change the basic chemical constituent base on which the current design of the WWTRF is based?
- Does this change have major implications (positive or negative) on design criteria or treatment processes?
- Does this change require additional CEQA documentation by the City since all CEQA documentation is based on current chemical constituents? An argument could be made that the changed circumstances, which the City knew about, should have been included in the original WWTRF's EIR.
- Does the importation of American River water change the water temperature regime in Auburn Ravine/WWTRF and does that change reduce/enhance the City's ability to meet discharge water temperature criteria?
- Does the importation of American River water change the water flow regime in Auburn Ravine upstream and/or downstream of the Ophir Tunnel outlet? If it

C. Please refer to Response L-112.B.

D. Please refer to Master Response 3.1.13, Auburn Ravine.

does, then what are the impacts on critical habitat for steelhead trout, the City of Auburn's NPDES permit requirements, and the City of Lincoln's NPDES permit and mitigation requirements under CESA/ESA?

The DEIS/DEIR currently does not address any of these factors. The document should be rewritten to provide a fair and scientifically defensible environmental assessment of these topics. Modeling should be completed on biologically appropriate time steps. All assumptions, data, data analyses, and conclusions must be presented in the document and supported by scientifically credible and professionally defensible documentation.

E

Page 2-7, Table 2-1: The selection of alternatives fails to meet the requirement of CEQA since the project objective of supplying water to PCWA only from the American River is too narrowly defined and should be expanded to providing a given amount of water to PCWA from alternative sources. The project objectives should be rewritten to include the broader objective and eliminate the obviously biased and illegal narrowly defined objectives in the document.

Page 2-127, Table 2-8: Under the heading of Other Water Supply Considerations, Land fallowing or land retirement is dismissed with a totally false, and fundamentally flawed excuse. The reasons for elimination are totally false and could not be supported by anything less than a totally biased analysis. This biased analysis is clearly a violation of both NEPA and CEQA requirements regarding alternatives consideration. Also, providing bogus or misleading statements in a public document is both wrong and illegal. The DEIS/DEIR should be rewritten with a fair and balanced assessment of alternative ways of providing the desired level of water to PCWA, while minimizing the impacts to the environment, as required under CEQA. The document should be rewritten to include all of the assumptions, data, and analyses used to reach the conclusions documented in Table 2-8.

F

Page 2-128, Table 2-9: This table indicates that a Corps of Engineers 404 permit under a nationwide program might be necessary. Reading the project description and the requirement for a Nationwide 3 permit, leads me to believe that this conclusion may not be supported by the facts. I suggest that the Nationwide 3 requirements be reviewed and the table adjusted if needed.

G

Page 3-23, Modeling Assumptions, Period of Record: Although the period of record is the standard used in many modeling assumptions, this period of record is not adequate or current enough to support the conclusions. The period of record should be extended to include the last decade of flow and operations, and then the results of the models evaluated. Having the most recent data in the period of record being more than 10 years old and ignoring 12% of the available record is totally unprofessional and does not allow the reader or decision maker to have confidence in the modeling outputs. The modeling analyses should be redone using the complete period of record and at the biologically appropriate time step (detailed later in this document).

D

Page 3-40, last paragraph discussing shortages and Auburn Ravine: This paragraph states that a groundwater overdraft condition exists in Western Placer County. This statement is not true. PCWA has continually assured public groups that groundwater supplies in Western Placer County are not being overdrafted, except in the very southwestern corner of the County and that overdraft is coming from well use in Sacramento County. This paragraph draws the conclusion that groundwater is not a long term viable alternative. This conclusion is not based on fact, and

E. Please refer to Response L-112.B.

F. Please refer to Response L-112.G.

G. Please refer to Response L-112.H.

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highlights the bias in the entire document toward a pumping plant in the American River canyon. While the best alternative may well indeed be a pumping plant in the canyon, the documentation to support such a conclusion should be based on objective, credible analysis. The current document does neither. The document should be rewritten and supported with objective and credible objectives, analyses, impact assessment, and conclusions.

Page 3-50 and the Fish Resources Section in General: This section of the document suffers from several fundamental flaws:

1. The analysis of water temperature, using monthly time steps, has no scientific or biological credibility. Water temperatures are a critical factor in all of the flow and water source/temperature analyses. However, use of a one month time step, using calculated water temperature releases is unjustifiable. Fish do not experience a monthly average water temperature and exposure of fish or eggs to lethal temperatures for even a few hours may have a significant effect on survival. For example, exposing incubating salmonid eggs to water temperatures above 56 F for one day increases mortality. This sort of perturbation would never show up in a monthly time step model, but you certainly would have lower survival because of project impacts. I suggest that all of the water temperature analyses be redone using real data, and a shorter time step in the modeling. Trying to make the analyses look quantitative, only serves to mislead the reader and the ultimate decision maker. Impacts should be based on assessment of real conditions, not some modeling exercises that is only suitable for comparative planning purposes. In addition, the geographic scope of the modeling should be expanded to include water temperature impacts on Auburn Ravine. These modeling analyses should include those portions of Auburn Ravine upstream of the Ophir Tunnel confluence which could be affected by this unknown "replacement water" operational scenario as well as the area downstream of the Ophir Tunnel discharge point. Changes in the stream's water temperature or water temperature pattern could have major impacts on the City of Lincoln's Wastewater Treatment and Reclamation Facility (WWTRF) design and/or National Pollution Discharge Elimination System (NPDES) permit and the City's ongoing listed species consultations with state and federal agencies. Someone with credible scientific credentials should look at the water temperature situation much more carefully, and fully document this in the final EIS.
2. The discussion of Auburn Ravine on pages 3-52 to 3-56 in general, demonstrates an incomplete understanding of the current situation, a cursory understanding of salmonid ecology and genetics, and a total lack of knowledge regarding the impacts of diverting additional water into Auburn Ravine on fish behavior. This section is so purposefully slanted to avoid the perception of any problems or issues being associated with the long term, year around diversions by the proposed project that it is fatally flawed. The document should be rewritten by someone with appropriate scientific credentials that could objectively assess the situation and reach supportable conclusions. This section of the document clearly is not objective and selectively presents information that is intended to purposefully mislead the reader and decision maker. This section clearly violates the legal mandates of NEPA and CEQA.

D. Please refer to Master Response 3.1.13, Auburn Ravine.

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3. In the impact assessment for salmonids in general, the document states that water temperatures of 60, 65, and 68 F all have some important threshold effect on salmonids at various periods in their life history. The rationale for selection of these three temperature yardsticks is presented only as anecdotal information and not supported by credible scientific documentation. It is interesting to note, that the 60 F water temperature assessment standard used for spawning and incubation is not supported by the Regional Water Quality Control Board or the California Department of Fish and Game. Entities applying for discharge permits are being held to a lower standard over many months of the year. The document's representation that these are the appropriate standards for impact assessments is not supported by fact. The water temperature impact assessment should be redone using real data and the appropriately documented criteria.

Page 3-52, Discussion on Auburn Ravine's natural flows: This section is unique in the report in that it discusses the natural flows in Auburn Ravine and quite cleverly leaves the reader with the impression that Auburn Ravine is not important as an anadromous fish stream. Why is this the only stream in which natural flows are an issue? During the drought of the late 1920's and early 1930's, the Sacramento River was dry in some places, but that type of information is not presented for other streams. An environmental document should describe the existing conditions in the stream and not attempt to bias the reader's thinking by inserting irrelevant information. Also, if the document preparers had examined the administrative record for the Lincoln Treatment Plant, they would have found that the NID Highway 65 gaging station only seasonally records flows up to 396 cfs and many of the flow readings below this level are estimates and known to be inaccurate by thousands of cubic feet per second. This fact is documented in the administrative record for Lincoln's EIR. This EIS should be rewritten using credible, factual information on Auburn Ravine flows.

Pages 3-54,3-56, 3-81-82 and others as appropriate - Discussion of the issue of additional straying into Auburn Ravine: The entire representation, impact assessment methodology, assumptions, and conclusions regarding the potential for additional straying of salmonids and splittail into Auburn Ravine are totally biased, lacking in scientific objectivity, based on scientifically unsupportable assumptions, have conclusions not supported by fact or credible scientific documentation, and a classic example of selectively presenting pseudo-science to support an a priori conclusion. Specific examples include:

- A. The DEIS/DEIR on page 3-81 states:

"Although increased straying of American River fall-run chinook salmon and steelhead into Auburn Ravine has been raised as an issue associated with increased release of American River flows into the ravine, the frequency of straying cannot be determined at this time. However, it should be noted that olfactory response is not the only factor that determines homing behavior in anadromous salmonids. In addition to odor imprinting during the juvenile lifestages, heredity plans an important part in homing behavior. Anadromous salmonids reared and released at locations different from those of their ancestral natal stream exhibit weaker homing responses than locally adapted fish (Bams 1976). These fish may return to their ancestral natal streams, even if they have never been exposed to its waters (McIsaac and Quinn 1988) due to innate preferences for

D. Please refer to Master Response 3.1.13, Auburn Ravine.

particular physical characteristics of the environment such as temperature, flow, or substrate composition (Quinn 1993 in Pascual et al. 1995). Heredity predilection may ameliorate the possibility of increased straying as a direct result of changing the proportion of American River water discharged into Auburn Ravine."

The paragraph quoted above is substantially misleading and attempts to misuse the influences of heredity to imply to the reader and decision maker that genetic predisposition may in fact limit the amount of additional straying of American River origin fish into Auburn Ravine. First, the reference to Bams (1976) is misleading. This paper deals with pink salmon, which have a totally unique life history pattern (i.e., intertidal or near-intertidal spawning and incubation, immediate emigration to estuarine or marine waters after emergence, limited ocean migrations, and a two-year life span). Because of the life history parameters of this species, they are more prone to stray than any other Pacific salmon species and can be geographically specifically imprinted to return to non-natal water falls and beaches. I suggest the Bureau and PCWA review the many reports published by the Alaska Department of Fish and Game on this topic, since this management scenario has been part of their commercial fishery management program for nearly thirty years. No one denies that genetics has an influence on migratory behavior. Examination of all of the coded wire tag data from Central Valley chinook salmon releases clearly shows that eggs transferred from Feather River Fish Hatchery or Nimbus Fish Hatchery to other facilities to hatch and rear, have strays that return to the hatchery of origin. However, two important factors influence this situation; these fish are generally trucked to Carquinez Strait for release and the olfactory influence of their natal stream is part of the water column until the last 100 miles or so. The situation with Auburn Ravine is different than implied by the quoted paragraph. In the examples cited, fish were released at a location different from their natal area and then returned to their natal area as adults; these fish were not under the influence of their natal olfactory cues. Fish straying to Auburn Ravine would not be attempting to straying to a foreign watershed, but merely moving as far upstream in the Sacramento River as they could detect American River water and then migrating upstream to spawn. I further discussed the genetics component of migratory behavior in terminal stream areas with Dr. Jennifer Nielsen (USGS, Alaska Science Center), one of the premier salmon and steelhead geneticists in the world, and she stated and agreed with my conclusion that olfactory cues would be much more important than genetics at this time in the fish's life.

I suggest the Bureau and PCWA review relevant literature on chinook salmon and steelhead homing strategies including:

- "During upstream migration, adult salmon primarily use their sense of smell to find their home stream." Reference: U.S. Bureau of Reclamation. 1997. Central Valley Project Improvement Act DPEIS, Technical Appendix Volume Three.
- "Salmon [salmonids in general], in general, have well-developed homing behaviour, apparently returning to their natal stream to spawn with considerable fidelity. The choice of spawning river, tributary, and even riffle appears to be guided by long-term memory of specific odours." Reference: M. C. Healey.

D. Please refer to Master Response 3.1.13, Auburn Ravine.

1991. Life history of chinook salmon. In: C. Groot and L. Margolis, eds., Pacific Salmon Life Histories.

- Healy also discusses the differences in the level of influence of olfactory versus visual cues in selection of a home stream. While he briefly discusses the influence of genetics, he further states "... The implication of these results [an experiment comparing return rate of visually occluded and olfactory occluded adults] is that both olfaction and vision are important in selection of a home stream, but that olfaction is by far the more important sense." Reference: M. C. Healey. 1991. Life history of chinook salmon. In: C. Groot and L. Margolis, eds., Pacific Salmon Life Histories.
- Various factors relating to hatchery/wild interactions as a factor for determining whether or not a particular stock should be listed. Also, it is important to note that the steelhead and chinook populations in Auburn Ravine could be changed from primarily Yuba/Bear river stocks to American River stocks. Reference: Status Review of Chinook Salmon from Washington, Idaho, Oregon, and California. NOAA Technical Memorandum NMFS-NWFSC-35, 1998.
- Croci (1996) cites a number of sources regarding the importance of olfactory cues in homing of salmon, while acknowledging a genetic component. Reference: Croci, S. J. 1996. A review of rearing and release strategies to improve imprinting, homing, and survival of hatchery-origin Sacramento River winter chinook salmon (*Oncorhynchus tshawytscha*). U. S. Fish and Wildlife Service Report, Northern Central Valley Fish and Wildlife Office, Red Bluff, CA.
- Healey and Groot (1987) summarize the relevant literature regarding chinook and sockeye salmon migration. They conclude that oceanic migrations are controlled by magnetic and sun orientation, while migration into the home stream is controlled primarily by olfaction. Reference: Healey, M. C. and C. Groot. 1987. Marine migration and orientation of ocean-type chinook and sockeye salmon. In: M. J. Dadswell and five co-editors: Common Strategies of Anadromous and Catadromous Fishes. American Fisheries Society Symposium 1.
- See Foerster (1968), for a discussion of salmonid imprinting and homing mechanisms, with a focus on sockeye salmon. Reference: Foerster, R. E., 1968. The sockeye salmon, *Oncorhynchus nerka*. Fisheries Research Board of Canada, Bulletin 162.
- Brett and MacKinnon (1954) document the acute sense of smell in Pacific salmon. Reference: Brett, J. R., and D. MacKinnon. 1954. Some aspect of olfactory perception in migrating adult coho and spring salmon. J. Fish. Res. Bd. Canada, 11(3): 310-318.
- Two other references contain a variety of papers on the biology and physiology of steelhead and salmon homing and imprinting. These references are: Proceedings of the Salmon and Trout Migratory Behavior Symposium, First International

D. Please refer to Master Response 3.1.13, Auburn Ravine.

Symposium, 1982. University of Washington and a second international symposium with the same title dated 1989.

B. The DEIS/DEIR on page 3-81 states:

“Even if chinook salmon and steelhead straying into Auburn Ravine is increased, no evidence is provided to demonstrate that straying would negatively affect fish communities present in Auburn Ravine. First, under natural conditions, straying is an integral part of salmonid behavior and is important for natural populations because it leads to the colonization of new habitat, avoidance of adverse local conditions, and increases in genetic heterogeneity (Pascual et al. 1995). Second, although straying information for steelhead is limited, coded wire tag studies for chinook salmon indicate that straying is very common in Central Valley streams. These results suggest that straying into Auburn Ravine would occur irrespective of the increased discharges of American River water associated with increased diversions at the seasonal pump station under the No Action/No Project Alternative. Third, genetic dilution of Auburn Ravine steelhead may not be of concern because NMFS considers both the American River and the Auburn Ravine steelhead to be within the Central Valley Evolutionary Significant Unit (ESU), and therefore, treats both populations as one. NMFS concludes (63 FR 13354: March 19, 1998) that “. . . steelhead in the Sacramento and San Joaquin River basins (Central Valley) should be considered a single ESU until additional information becomes available.” In addition, CDFG currently considers all steelhead/rainbow trout in Auburn Ravine to be winter-run steelhead (63 FR 13354: March 19, 1998). Also, steelhead/rainbow trout in Auburn Ravine probably do not represent a genetically uncontaminated stock because of past introductions (stocking) directly into Auburn Ravine and current introduction into connected water bodies. Chinook salmon present in Auburn Ravine also probably do not represent a genetically uncontaminated stock, because of hatchery introduction in Auburn Ravine.”

The paragraph quoted above suffers from the following problems and generally misleads the public and decision maker regarding the biological situation in Auburn Ravine:

- The paragraph states: “Even if chinook salmon and steelhead straying into Auburn Ravine is increased, no evidence is provided to demonstrate that straying would negatively affect fish communities present in Auburn Ravine.”

Comment: This statement is somewhat misleading, while it is true that no evidence is provided [by whom?] to demonstrate harm, this entire paragraph misses the point. First, it is the project proponents’ responsibility to demonstrate no harm to a listed species or its critical habitat. Second, we are talking about changing the genetic origin of fish in Auburn Ravine from Yuba/Bear rivers to American River strains. Finally, no evidence is provided by the Bureau or PCWA that a neutral or beneficial effect on fish populations will occur. Under the ESA, Bureau programs must facilitate recovery of listed species. No demonstration of recovery actions are presented in this DEIS/DEIR.

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